WHAT IS CLAIMED

1. An arrangement for interfacing a marine communication cable, that is retained within a communication buoy mooring cable, with a communication cable connection fixture of said buoy, said arrangement comprising a segmented, flexible sheath structure having an interior passageway that is sized to accommodate therethrough one or more communication link members, first ends of said one or more communication link members being connectable with said communication cable connection fixture of said buoy, and second ends of said one or more communication link members being connectable to communication cable terminal connectors of a terminal end of said mooring, and,

wherein said segmented, flexible sheath comprises a plurality of pivotally interconnected gimbal rings having mutually adjacent interior apertures through which said one or more communication link members pass.

2. The arrangement according to claim 1, wherein successive ones of said pivotally interconnected gimbal rings are pivotally interconnected with one another so as to make said flexible sheath flexible in three dimensions.

3. The arrangement according to claim 1, wherein a respective gimbal ring comprises a first gimbal ring portion having a first diameter, and second gimbal ring portion having a second diameter, smaller than said

first diameter, such that said second gimbal ring portion of said respective gimbal ring fits within the first gimbal ring portion of an adjacent gimbal ring.

4. The arrangement according to claim 3, wherein each of said first gimbal ring portion and said second gimbal ring portion includes a respective pivot structure, such that said second gimbal ring portion of said respective gimbal ring pivots within the first gimbal ring portion of an adjacent gimbal ring.

5. The arrangement according to claim 3, wherein said first gimbal ring portion includes a first pair of pivot apertures, and said second gimbal ring portion includes a second pair of pivot apertures sized to be aligned with a first pair of pivot apertures of an adjacent gimbal ring, and further including respective pivot pins passing through aligned first and second pairs of pivot apertures of adjacent gimbal rings.

6. The arrangement according to claim 5, wherein a first axis passing through said first pair of pivot apertures is orthogonal to a second axis passing through said second pair of pivot apertures.

7. The arrangement according to claim 6, wherein said first gimbal ring portion includes stop elements which limit the extent to which the second gimbal ring

portion of an adjacent gimbal ring may pivot about said first axis.

8. The arrangement according to claim 1, further including an attachment gimbal base coupled with said communication cable connection fixture of said buoy, and configured to be pivotally coupled with a first end of one of said pivotally interconnected gimbal rings of said flexible sheath.

9. The arrangement according to claim 8, further including a cable riser attachment gimbal ring configured to be pivotally coupled with a second end one of said pivotally interconnected gimbal rings of said flexible sheath.

10. A method of interfacing a marine communication cable, that is retained within a communication buoy mooring cable, with a communication cable connection fixture of said buoy, said method comprising the steps of:

(a) providing a segmented, flexible sheath structure having an interior passageway that is sized to accommodate therethrough one or more communication link members;

(b) inserting one or more communication link members through said segmented, flexible sheath structure; and

(c) coupling first ends of said one or more communication link members with said communication cable connection fixture of said buoy, and second ends of said one or more communication link members to communication cable terminal connectors of a riser terminal end of said mooring cable; and wherein

said providing step (a) comprises pivotally intercoupling a plurality of gimbal rings to form said segmented, flexible sheath structure, said gimbal rings having mutually adjacent interior apertures, and

said coupling step (b) comprises passing said one or more communication link members through said mutually adjacent interior apertures of said plurality of gimbal rings.

11. The method according to claim 10, wherein said providing step (a) further comprises coupling an attachment gimbal base with said communication cable connection fixture of said buoy, and pivotally coupling said attachment gimbal base with a first end one of said pivotally interconnected gimbal rings of said flexible sheath, said attachment gimbal base having an interior aperture sized to accommodate first terminal ends of said one or more communication link members.

12. The method according to claim 11, wherein said providing step (a) further comprises pivotally coupling a cable riser attachment gimbal ring with a second end one of said pivotally interconnected gimbal rings of

said flexible sheath, said cable rise attachment gimbal ring having an interior aperture sized to accommodate second terminal ends of said one or more communication link members.

13. The method according to claim 10, wherein a respective gimbal ring comprises a first gimbal ring portion having a first diameter, and second gimbal ring portion having a second diameter, smaller than said first diameter, such that said second gimbal ring portion of said respective gimbal ring fits within the first gimbal ring portion of an adjacent gimbal ring, and wherein each of said first gimbal ring portion and said second gimbal ring portion includes a respective pivot structure, such that said second gimbal ring portion of said respective gimbal ring pivots within the first gimbal ring portion of an adjacent gimbal ring, and wherein said first gimbal ring portion includes a first pair of pivot apertures, and said second gimbal ring portion includes a second pair of pivot apertures sized to be aligned with a first pair of pivot apertures of an adjacent gimbal ring, and further including respective pivot pins passing through aligned first and second pairs of pivot apertures of adjacent gimbal rings.

14. The method according to claim 13, wherein a first axis passing through said first pair of pivot

apertures is orthogonal to a second axis passing through said second pair of pivot apertures.

15. The method according to claim 14, wherein said first gimbal ring portion includes stop elements which limit the extent to which the second gimbal ring portion of an adjacent gimbal ring may pivot about said first axis.

16. A transition interface for interfacing a marine communication cable, that is retained within a communication buoy mooring cable, with a communication cable connection fixture of said buoy, said transition interface comprising a segmented, flexible sheath formed of a plurality of pivotally interconnected gimbal rings having mutually adjacent interior apertures through which one or more communication link members pass, wherein successive ones of said pivotally interconnected gimbal rings are pivotally interconnected with one another so as to make said flexible sheath flexible in three dimensions, first ends of said one or more communication link members being connectable with said communication cable connection fixture of said buoy, and second ends of said one or more communication link members being connectable to communication cable terminal connectors of a terminal end of said mooring cable.

17. The transition interface according to claim 16, wherein a respective gimbal ring comprises a first gimbal ring portion having a first diameter, and second gimbal ring portion having a second diameter, smaller than said first diameter, such that said second gimbal ring portion of said respective gimbal ring fits within the first gimbal ring portion of an adjacent gimbal ring, and wherein each of said first gimbal ring portion and said second gimbal ring portion includes a respective pivot structure, such that said second gimbal ring portion of said respective gimbal ring pivots within the first gimbal ring portion of an adjacent gimbal ring.

18. The transition interface according to claim 17, further including an attachment gimbal base coupled with said communication cable connection fixture of said buoy, and configured to be pivotally coupled with a first end one of said pivotally interconnected gimbal rings of said flexible sheath, and a cable riser attachment gimbal ring configured to be pivotally coupled with a second end one of said pivotally interconnected gimbal rings of said flexible sheath.